

**28TH INTERNATIONAL KARSTOLOGICAL SCHOOL "CLASSICAL KARST" REGIONAL KARSTOLOGY - LOCAL AND GENERAL ASPECTS** 



ultural Organization 
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# THE IMPORTANCE OF KARST IN SERGIPE, NORTHEAST, BRAZIL

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#### INTRODUCTION



For the most part, caves are the result of actions and forces that have been operating on the planet for millions of years. The result is a slow and delicate process of deconstruction and consequent reconstruction of the Landscape.

In Sergipe, Brazil, these processes also occurred. However,

In the State, cave systems are present in the two units of the carbonate karst in Sergipe, as shown in Figure 1. In these two karst areas are 133 caves. Thirty-four are in the municipality of Poço Verde, 19 in Simão Dias, 17 in Laranjeiras, and 13 in Lagarto. The other caves are sparsely distributed in the fourteen remaining municipalities.













due to climatic, geological and topographic factors, the development of the endokarst did not occur similar to those of Other karst provinces such as the Bambuí and Una Groups, where the largest caves in Brazil are located.

Since the first report on karst features in Sergipe refers to the American geologist John C. Branner, in 1890, our research addresses important aspects to understand the evolution of the endokarst in Sergipe to contribute to the planning and management of a type of landscape still not well known in the region

#### MATERIAL AND METHODS

Fieldwork was adopted as main methodological procedure. It was associated with bibliographic review and cartographic materials.

In this investigation, the karst landscapes refer to the traditional karst composed by carbonates of the Sergipe Basin, located in the Coastal Province and the Continental Margin, and the traditional karst of Olhos D'Água/Frei Paulo, located in the Folding Strip of Sergipe in the Vaza-Barris Domain (Figure 1).

The caves of the traditional karst in Sergipe do not have expressive horizontal and vertical development. In general, they present low diversity of speleothems. Except for a massif located in Poço Verde, there is no connected cave system; the caves evolved within the massifs. This is the result of presenting other types of materials deposited between isolated carbonate massifs, the absence of a well developed epikarst, and a low gradient of relief.

In the karst area of Olhos D'Água/Frei Paulo, carbonate and metacarbonate are interspersed with phyllite, metasandstone, micaceous metasiltites with subordinate lenses of metaargilite, metaconglomerate, metacherts, quartzites, etc. These rocky materials associated with carbonates create real barriers to the carbonate dissolution process, hindering the evolution of chemical features in the endokarst (Figure 3).



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Fig. 1: Karst areas in Sergipe, Brazil.



Fig. 3: Action of differential erosion in silica intercalations with the carbonates of the Olhos D'Água Formation, Toca da Raposa cave, Simão Dias (SE) Source: H. dos S. Macedo, 2016

## CONCLUSIONS

The incipiency of speleogenesis in the traditional karst in Sergipe is attributed, among several factors, to the low development of the epikarst. Soils and deposited sediments are fundamental for the karstification process. They directly contact carbonate rocks, influencing internal water circulation and elaborating the covered rock morphology.

The underground karst of Sergipe has relevance to several ecosystems, including the human. Among the services provided are water supply through springs, reservoirs, aquifers, and biological control. From the point of view of use, caves have aesthetic and economic value, supporting tourism activities and other aspects of



#### Fig. 2: Karren field in Poço Verde, Sergipe

Source: H. dos S. Macedo, 2016

leisure.